

WHAT IS CLAIMED IS:

- 1 1. A content-duplication management apparatus that manages
2 duplication and deletion of a content with respect to a
3 playback apparatus connected to a network, based on requests
4 acquired from the playback apparatus, comprising:
 - 5 a group judging unit operable to judge whether the
6 playback apparatus belongs to a predetermined group;
 - 7 a holding unit operable to hold an in-group remaining
8 number and an out-group remaining number, the in-group
9 remaining number being a remaining number of duplications
10 of the content permitted of apparatuses belonging to the
11 group, and the out-group remaining number being a remaining
12 number of duplications of the content permitted of
13 apparatuses not belonging to the group; and
 - 14 a management unit operable, in response to a request
15 acquired from the playback apparatus, to (i) reply in the
16 affirmative and update the in-group remaining number or reply
17 in the negative, based on the in-group remaining number, when
18 the playback apparatus is judged to belong to the group, and
19 (ii) reply in the affirmative and update the out-group
20 remaining number or reply in the negative, based on the
21 out-group remaining number, when the playback apparatus is
22 judged to not belong to the group.

1 2. The content-duplication management apparatus of claim 1,
2 wherein
3 the request is a duplication request, and
4 the management unit, in response to the duplication
5 request, (i) replies in the affirmative and subtracts "1"
6 from the in-group remaining number if the in-group remaining
7 number is not "0", and replies in the negative if the in-group
8 remaining number is "0", when the playback apparatus is
9 judged to belong to the group, and (ii) replies in the
10 affirmative and subtracts "1" from the out-group remaining
11 number if the out-group remaining number is not "0", and
12 replies in the negative if the out-group remaining number
13 is "0", when the playback apparatus is judged to not belong
14 to the group.

1 3. The content-duplication management apparatus of claim 1,
2 wherein
3 the request is a deletion request, and
4 the management unit, in response to the deletion
5 request, (i) replies in the affirmative and adds "1" to the
6 in-group remaining number when the playback apparatus is
7 judged to belong to the group, and (ii) replies in the
8 affirmative and adds "1" to the out-group remaining number
9 when the playback apparatus is judged to not belong to the

10 group.

1 4. The content-duplication management apparatus of claim 1,
2 wherein

3 the request includes start information indicating a
4 start time of duplication or deletion of the content,

5 the content-duplication management apparatus further
6 comprises a time management unit that includes a clock and
7 is operable, when the start time is shown by the clock, to
8 output an operation instruction to the management unit, and

9 the management unit, on receipt of the operation
10 instruction, (i) replies in the affirmative and updates the
11 in-group remaining number or replies in the negative, based
12 on the in-group remaining number, when the playback apparatus
13 is judged to belong to the group, and (ii) replies in the
14 affirmative and updates the out-group remaining number or
15 replies in the negative, based on the out-group remaining
16 number, when the playback apparatus is judged to not belong
17 to the group.

1 5. The content-duplication management apparatus of claim 1,
2 wherein

3 the request includes a usage expiry date-time of the
4 content,

5 the content-duplication management apparatus further
6 comprises a time management unit that includes a clock and
7 is operable, when the usage expiry date-time is shown by the
8 clock, to output an operation instruction to the management
9 unit, and

10 the management unit, on receipt of the operation
11 instruction, (i) adds "1" to the in-group remaining number
12 when the playback apparatus is judged to belong to the group,
13 and (ii) adds "1" to the out-group remaining number when the
14 playback apparatus is judged to not belong to the group.

1 6. The content-duplication management apparatus of claim 1,
2 wherein

3 the management unit notifies to the playback apparatus,
4 transfer information showing a number that is less than or
5 equal to at least one of the in-group remaining number and
6 the out-group remaining number, and subtracts the number
7 shown by the transfer information from the at least one of
8 the in-group remaining number and the out-group remaining
9 number.

1 7. The content-duplication management apparatus of claim 1,
2 wherein

3 the management unit holds duplication-generation

4 information relating to the content, and (i) replies in the
5 affirmative and updates the in-group remaining number or
6 replies in the negative, based on the duplication-generation
7 information and the in-group remaining number, when the
8 playback apparatus is judged to belong to the group, and (ii)
9 replies in the affirmative and updates the out-group
10 remaining number or replies in the negative, based on the
11 duplication-generation information and the out-group
12 remaining number, when the playback apparatus is judged to
13 not belong to the group.

1 8. The content-duplication management apparatus of claim 1,
2 wherein

3 the request includes request-apparatus information
4 unique to the playback apparatus, and

5 the management unit holds a revocation list showing one
6 or more apparatuses to which content duplication is not
7 permitted, and (i) replies in the affirmative and updates
8 the in-group remaining number or replies in the negative,
9 based on the request-apparatus information, the revocation
10 list and the in-group remaining number, when the playback
11 apparatus is judged to belong to the group, and (ii) replies
12 in the affirmative and updates the out-group remaining number
13 or replies in the negative, based on the request-apparatus

14 information, the revocation list and the out-group remaining
15 number, when the playback apparatus is judged to not belong
16 to the group.

1 9. The content-duplication management apparatus of claim 1,
2 wherein

3 the request includes request-area information showing
4 an area relating to the playback apparatus, and

5 the management unit holds specified area information
6 that is for restricting an area in which duplication and
7 deletion of the content is executed, and (i) replies in the
8 affirmative and updates the in-group remaining number or
9 replies in the negative, based on the request-area
10 information, the specified area information and the in-group
11 remaining number, when the playback apparatus is judged to
12 belong to the group, and (ii) replies in the affirmative and
13 updates the out-group remaining number or replies in the
14 negative, based on the request-area information, the
15 specified area information and the out-group remaining
16 number, when the playback apparatus is judged to not belong
17 to the group.

1 10. The content-duplication management apparatus of claim
2 1, further comprising:

3 an authentication unit operable to share a session key
4 with the playback apparatus by conducting authentication
5 processing with the playback apparatus; and
6 an encryption/decryption unit operable, if
7 authentication is successful, to encrypt and decrypt
8 communication with the playback apparatus using the session
9 key.

1 11. The content-duplication management apparatus of claim
2 1, further comprising:

3 a request accumulation unit operable to manage the
4 requests using a request-arrival sequence queue, and to have
5 the management unit execute a deletion request that is
6 subsequent in the queue to a duplication request, prior to
7 the duplication request, when the in-group or out-group
8 remaining number is "0".

1 12. The content-duplication management apparatus of claim
2 1, wherein

3 the network is a home network connected to an external
4 network, the content is acquired from outside the home
5 network, and the group judging unit judges apparatuses
6 connected to the home network as belonging to the group.

1 13. A content-duplication management method for managing
2 duplication and deletion of a content with respect to a
3 playback apparatus connected to a network, based on requests
4 acquired from the playback apparatus, comprising the steps
5 of:

6 judging whether the playback apparatus belongs to a
7 predetermined group;

8 holding an in-group remaining number and an out-group
9 remaining number, the in-group remaining number being a
10 remaining number of duplications of the content permitted
11 of apparatuses belonging to the group, and the out-group
12 remaining number being a remaining number of duplications
13 of the content permitted of apparatuses not belonging to the
14 group; and

15 in response to a request acquired from the playback
16 apparatus, (i) replying in the affirmative and updating the
17 in-group remaining number or replying in the negative, based
18 on the in-group remaining number, when the playback apparatus
19 is judged to belong to the group, and (ii) replying in the
20 affirmative and updating the out-group remaining number or
21 replying in the negative, based on the out-group remaining
22 number, when the playback apparatus is judged to not belong
23 to the group.

1 14. A computer program applied in a content-duplication
2 management apparatus that manages duplication and deletion
3 of a content with respect to a playback apparatus connected
4 to a network, based on requests acquired from the playback
5 apparatus, comprising the steps of:

6 judging whether the playback apparatus belongs to a
7 predetermined group;

8 holding an in-group remaining number and an out-group
9 remaining number, the in-group remaining number being a
10 remaining number of duplications of the content permitted
11 of apparatuses belonging to the group, and the out-group
12 remaining number being a remaining number of duplications
13 of the content permitted of apparatuses not belonging to the
14 group; and

15 in response to a request acquired from the playback
16 apparatus, (i) replying in the affirmative and updating the
17 in-group remaining number or replying in the negative, based
18 on the in-group remaining number, when the playback apparatus
19 is judged to belong to the group, and (ii) replying in the
20 affirmative and updating the out-group remaining number or
21 replying in the negative, based on the out-group remaining
22 number, when the playback apparatus is judged to not belong
23 to the group.

1 15. A playback apparatus that requests duplication and
2 deletion of a content, with respect to a content-duplication
3 management apparatus as in claim 1 that manages duplication
4 and deletion of the content, comprising:
5 a request unit operable to request duplication or
6 deletion of the content;
7 a group notifying unit operable to notify to the
8 content-duplication management apparatus, group information
9 showing a group that the playback apparatus belongs to;
10 an acquiring unit operable to acquire from the
11 content-duplication management apparatus, permission
12 information showing whether the request is permitted; and
13 an execution unit operable to duplicate or delete the
14 content, based on the permission information.

1 16. The playback apparatus of claim 15, further comprising:
2 a broadcast transmitting unit operable to broadcast to
3 apparatuses over a network, identification information
4 identifying the content whose duplication or deletion is
5 requested;
6 a reply receiving unit operable to receive a response
7 to the broadcasted identification information; and
8 a selecting unit operable to select, based on a
9 predetermined condition, one apparatus from apparatuses that

10 respond to the broadcast, wherein
11 the request unit requests the selected apparatus for
12 permission to duplicate the content.

1 17. The playback apparatus of claim 16, wherein
2 the apparatuses over the network each have a preset
3 priority level, and
4 the selecting unit selects, from the apparatuses that
5 respond, the apparatus having the highest priority level.

1 18. The playback apparatus of claim 16, wherein
2 the apparatuses over the network each prehold
3 capability information showing an information processing
4 capability of the apparatus,
5 the response includes the capability information, and
6 the selecting unit selects, from the apparatuses that
7 respond, the apparatus having capability information that
8 shows the highest information processing capability.

1 19. The playback apparatus of claim 16, wherein
2 the selecting unit selects the first apparatus to
3 respond.

1 20. The playback apparatus of claim 16, wherein

2 the selecting unit selects, from the apparatuses that
3 respond, the apparatus having the shortest round-trip time
4 between an ICMP echo request message and an ICMP echo reply
5 message.

1 21. The playback apparatus of claim 15, wherein
2 the content-duplication management apparatus notifies
3 to the playback apparatus, transfer information showing a
4 number that is less than or equal to at least one of the
5 in-group remaining number and the out-group remaining number,
6 and
7 the playback apparatus further comprises:
8 a management unit operable to acquire the transfer
9 information, and to permit decryption of the content within
10 a range of the number shown by the transfer information, with
11 respect to another apparatus.

1 22. The playback apparatus of claim 15, wherein
2 the permission information includes a usage expiry
3 date-time of the content, and
4 the playback apparatus further comprises:
5 a clock; and
6 a management unit operable to delete the content when
7 the usage expiry date-time is shown by the clock.

1 23. The playback apparatus of claim 15, further comprising:
2 an authentication unit operable to share a session key
3 with the content-duplication management apparatus by
4 conducting authentication processing with the
5 content-duplication management apparatus; and
6 an encryption/decryption unit operable, if
7 authentication is successful, to encrypt and decrypt
8 communication with the content-duplication management
9 apparatus using the session key.

1 24. The playback apparatus of claim 15, wherein
2 the playback apparatus is a recording medium having an
3 IC.

1 25. A playback method for requesting duplication and deletion
2 of a content, with respect to a content-duplication
3 management apparatus as in claim 1 that manages duplication
4 and deletion of the content, comprising the steps of:
5 requesting duplication or deletion of the content;
6 notifying to the content-duplication management
7 apparatus, group information showing a group that the
8 playback apparatus belongs to;
9 acquiring from the content-duplication management
10 apparatus, permission information showing whether the

11 request is permitted; and
12 duplicating or deleting the content, based on the
13 permission information.

1 26. A computer program applied in a playback apparatus that
2 requests duplication and deletion of a content, with respect
3 to a content-duplication management apparatus as in claim
4 1 that manages duplication and deletion of the content,
5 comprising the steps of:

6 requesting duplication or deletion of the content;
7 notifying to the content-duplication management
8 apparatus, group information showing a group that the
9 playback apparatus belongs to;

10 acquiring from the content-duplication management
11 apparatus, permission information showing whether the
12 request is permitted; and

13 duplicating or deleting the content, based on the
14 permission information.

1 27. A content-duplication management system comprising a
2 playback apparatus that requests and plays a content, and
3 a content-duplication management apparatus that is connected
4 to the playback apparatus via a network and manages
5 duplication and deletion of the content with respect to the

6 playback apparatus, the playback apparatus including:
7 a request unit operable to request duplication or
8 deletion of the content;
9 a group notifying unit operable to notify to the
10 content-duplication management apparatus, group information
11 showing a group that the playback apparatus belongs to;
12 an acquiring unit operable to acquire from the
13 content-duplication management apparatus, permission
14 information showing whether the request is permitted; and
15 an execution unit operable to duplicate or delete the
16 content, based on the permission information, and
17 the content-duplication management apparatus
18 including:
19 a group judging unit operable to judge whether the
20 playback apparatus belongs to a predetermined group, based
21 on the group information notified from the playback
22 apparatus;
23 a holding unit operable to hold an in-group remaining
24 number and an out-group remaining number, the in-group
25 remaining number being a remaining number of duplications
26 of the content permitted of apparatuses belonging to the
27 predetermined group, and the out-group remaining number
28 being a remaining number of duplications of the content
29 permitted of apparatuses not belonging to the predetermined

30 group; and

31 a management unit operable, in response to the request
32 acquired from the playback apparatus, to (i) reply in the
33 affirmative and update the in-group remaining number or reply
34 in the negative, based on the in-group remaining number, when
35 the playback apparatus is judged to belong to the
36 predetermined group, and (ii) reply in the affirmative and
37 update the out-group remaining number or reply in the
38 negative, based on the out-group remaining number, when the
39 playback apparatus is judged to not belong to the
40 predetermined group.

1 28. The content-duplication management system of claim 27,
2 wherein

3 the content-duplication management apparatus requests
4 an accounting system to manage accounting, when the
5 management unit replies in the affirmative.